

Section II. Remarks**March 14, 2005 Telephonic Conference Between Examiner Hu and Undersigned Attorney**

This documents the substance of the March 14, 2005 telephonic conference between Examiner Hu and the undersigned attorney, discussing the substance of the February 10, 2005 Office Action, and the distinctions of the applicant's claims over the Bergman reference.

At the outset of the interview, it was noted by the undersigned attorney at Examiner Hu in the February 10, 2005 Office Action had withdrawn claims 19 and 20 as directed to a non-elected invention.

It was pointed out by the undersigned attorney that such action was inappropriate with respect to claim 20, since the recited method of claim 20 is wholly within the scope of generic claim 1.

Specifically, it was noted that:

Claim 1 recites "heating a polytetrafluoroethylene material to an elevated temperature"	Claim 20 recites "exposing the [polytetrafluoroethylene] film to a temperature in a range of from about 150°C to about 250°C"
Claim 1 recites "maintaining said heating"	Claim 20 recites "exposing the film to a temperature in a range of from about 150°C to about 250°C for a time greater than 20 hours"
Claim 1 recites "for a time sufficient to substantially reduce a particle count character of the polytetrafluoroethylene material"	Claim 20 recites "for a time greater than 20 hours, sufficient to reduce particle count of said film to below 10 particles/ml of particles having a diameter of 0.2 micron"

Examiner Hu responded that the undersigned attorney should write claim 20 in dependent form under claim 1, or cancel claim 1 and replace it by claim 20. The undersigned attorney stated that

since claim 20 could in fact be rewritten in dependent form under claim 1, claim 20 should not have been withdrawn under a restriction requirement.

Mr. Hu responded to the undersigned attorney, "you just need to do your best job and I will consider."

The undersigned attorney then emphasized to Examiner Hu that in order for a §102 rejection to be proper, all limitations of a claim must be found in a single reference, and noted for example to the examiner that the pending claims included claims that recited heating times in excess of 20 hours, e.g., claim 7, reciting a time between 20 hours and about 100 hours, and claim 20, reciting a heating time greater than 20 hours.

It was pointed out by the undersigned attorney that the cited reference Bergman teaches heating for a period of 30 seconds to five minute, more preferably from 30 seconds to two minutes, which is too short a period of time to achieve particle count reductions, and the undersigned attorney emphasized applicants' data showing particle count reductions of 15 to almost 60 times that of untreated films.

The undersigned attorney then reemphasized the fact that the Bergman reference teaching of a maximum time of five minutes is inconsistent with applicants' various claims reciting heat treating for a period of greater than 20 hours, to which Examiner Hu responded, "well, sometime researcher leave oven on and go home. This is trivial difference." The Examiner then followed up with the suggestion, "you just give your best shot and I will consider. You must narrow claim scope so that you have something."

Finally, the undersigned attorney asked the examiner for clarification of the examiner's statement in Paragraph 9 at page 6 of the February 10, 2005 Office Action that "without specifying (A) the degree of count reduction and (B) a pure PTFE in the form of film being used, the Bergment [sic-the reference is Bergman] reference anticipates the limitation of parent Claims 1, 10 and 12."

The examiner was specifically asked if by such statement the examiner was in fact indicating that inclusion of a degree of count reduction and recital of PTFE film in the applicants' claims would be necessary to patentably distinguish the applicants' invention, since pending claim 20 recites PTFE film and recites a reduction of particle count of the film to below 10 particles/ml of particles having a diameter of 0.2 micron. The Examiner responded that these limitations did not distinguish and that further recital of temperature would be necessary. The undersigned attorney then pointed out that claim 20 in fact had a temperature range of from about 150°C to about 250°C and asked Examiner Hu whether claim 20 was patentable in the examiner's assessment. The examiner replied, "No, you need something specific. You just write it up and I will look at it."

The foregoing substance of the telephonic conference with the examiner has therefore been taken into appropriate account in the present response.

Status of the Claims 1-20

Claims 1-20 have been retained herein without change.

The issues raised by the examiner in the February 10, 2005 Office Action are addressed below, with a reiteration of the reasons why the pending claims patentably distinguish over the teachings of Bergman et al.

Improper Restriction and Withdrawal of Claim 20 in February 10, 2005 Office Action.

The restriction and withdrawal of claim 20 in the February 10, 2005 Office Action is improper, since the subject matter of claim 20 is within the scope of broad claim 1, a fact that was implicitly conceded by the examiner in the telephonic conference with the undersigned attorney on March 14, 2005, wherein the examiner suggested that claim be rewritten in dependent form under claim, or that alternatively claim 1 be cancelled and replaced by claim 20 (see preceding section hereinabove, documenting the substance of the March 14, 2005 telephonic conference).

Again, a simple tabular comparison of the language of claims 1 and 20 shows that these claims are not "independent and distinct" in relation to each other.

Claim 1 recites "heating a polytetrafluoroethylene material to an elevated temperature"	Claim 20 recites "exposing the [polytetrafluoroethylene] film to a temperature in a range of from about 150°C to about 250°C"
Claim 1 recites "maintaining said heating"	Claim 20 recites "exposing the film to a temperature in a range of from about 150°C to about 250°C for a time greater than 20 hours"
Claim 1 recites "for a time sufficient to substantially reduce a particle count character of the polytetrafluoroethylene material"	Claim 20 recites "for a time greater than 20 hours, sufficient to reduce particle count of said film to below 10 particles/ml of particles having a diameter of 0.2 micron"

35 USC §121 provides that

"If two or more independent and distinct inventions are claimed in one application, the Director may require the application to be restricted to one of the inventions."

Thus, in order for a restriction to be legally permissible, there must be independent and distinct inventions. Since the subject matter of claim 20 is within the scope of claim 1, as evidenced by

the examiner's suggestion to have claim 20 depend from claim 1, it is apparent that there is a close interrelationship of subject matter in the respective claims. The question then presents itself, if the examiner has proposed that claim 20 be dependent under claim 1, how can the subject matter of claim 20 be "independent and distinct?"

The answer to such question is that the subject matter of claim 20 clearly is NOT independent and distinct, and therefore the restriction and withdrawal of claim 20 should be rescinded, and claim 20 restored to active status for examination and allowance. Such action is respectfully requested.

The Applicants' Invention

In view of the fact that the examiner has maintained the rejection of applicants' claims on §102 grounds over Bergman et al., as discussed more fully hereinafter, and since the examiner therefore is necessarily contending that each and every limitation of applicants' claims is identically found in the Bergman et al. reference, it is instructive to reconsider the applicants' invention and its contribution to the art.

Polytetrafluoroethylene (PTFE) is used as a structural and coating material in innumerable applications due to its chemical inertness and other favorable properties. Applicants have discovered that PTFE has a significant problem – particle shedding – and that such problem is a severe impediment to use of PTFE in applications such as the use of PTFE in liners that are employed to contain liquids for storage and subsequent dispensing, e.g., ultrapure liquids that are used for manufacturing of semiconductor products.

The PTFE heat treating method and resultant article of the invention resolve this particle shedding problem, and thereby achieve a substantial advance in the art.

In the instant application, the inherent particle shedding deficiency of PTFE is discussed at pages 1-2 in paragraph [0006] of the specification.

The heat treatment method of the invention has been found to minimize the incidence and extent of particle shedding, with particle count reductions of fifteen to almost sixty times those of untreated PTFE, based on the exemplary particle count values set out in paragraph [0048] of the application.

The particle shedding problem is a problem that prior to applicants' invention has not been appreciated by the art, and the art therefore has not contemplated any methodology or approach to resolve such deficiency.

Applicants therefore have broadly claimed the method of their invention in claim 1 as:

1. A method comprising: heating a polytetrafluoroethylene material to an elevated temperature; and maintaining said heating for a time sufficient to substantially reduce a particle count character of the polytetrafluoroethylene material.

and claims dependent thereunder further specify the temperature (e.g., claim 6, reciting "temperature ... between about 130°C and about 260°C") and the heating time (e.g., claim 7, reciting "time ... between about 20 hours and about 100 hours"), as used to reduce the particle count character of the PTFE.

Further, applicants have claimed the invention in a specific manner in claim 20 with respect to temperature, heating time and particle count character:

20. A method of treating a polytetrafluoroethylene film to reduce particle count character thereof, comprising exposing the film to a temperature in a range of from about 150°C to about 250°C for a time greater than 20 hours, sufficient to reduce particle count of said film to below 10 particles/ml of particles having a diameter of 0.2 micron.

There is nothing in the cited reference of Bergman et al. that in any way teaches, suggests, motivates, or extrapolates to applicants' claimed invention, as discussed more fully hereinafter.

The Rejection Maintained by the Examiner

In the February 10, 2005 Office Action, in Paragraph 3 at page 3 thereof, the examiner has stated that "the 103(a) rejections over Bergman et al. for Claims 1-18 is sustained." It is pointed out, however, that there was NEVER any §103(a) rejection of any claims made at any time during the prosecution of this application.

All rejections in the August 11, 2004 Office Action were based on 35 USC §102(b).

Further, after the inconsistent reference to §103(a) in the February 10, 2005 Office Action, the examiner thereafter quotes the text of 35 USC §102(b) and maintains all rejections on §102(b) grounds.

Accordingly, the ensuing discussion, while addressing the §102(b) grounds of rejection actually stated in all Office Actions issued to date by the examiner, also notes that there is no basis in §103(a) for the rejection of claims.

Argument for Patentability of Claims 1-18 and 20

In order for a §102(b) rejection of claims to be legally proper, the single cited reference must meet the criteria stated in MPEP §706.02, i.e., the cited reference:

“must teach every aspect of the claimed invention either explicitly or implicitly. Any feature not directly taught must be inherently present.” (MPEP §706.02, Rejection on Prior Art [R-1]).

The governing law of CAFC decisions is consistent with such MPEP standard, in declaring that prior art is anticipatory only if every element of the claimed invention is disclosed in a single item of prior art in the form literally defined in the claim.

See *Jamesbury Corp. v. Litton Indus. Products*, 756 F.2d 1556, 225 USPQ 253 (Fed. Cir. 1985); *Atlas Powder Co. v. Du Pont*, 750 F.2d 1569, 224 USPQ 409 (Fed. Cir. 1984); and *American Hospital Supply v. Travenol Labs*, 745 F.2d 1 223, USPQ 577 (Fed. Cir. 1984).

Considered against these criteria, Bergman lacks disclosure of heat treatment of PTFE involving “heating for a time sufficient to substantially reduce a particle count character of the polytetrafluoroethylene material,” as recited in claim 1.

Bergman discloses a heating process that is used to volatilize reaction by-products that can form under some conditions on semiconductor wafers (see Bergman, Abstract, lines 16-19).

As stated at column 1, lines 55-58 of Bergman:

"One of the disadvantages of immersion etching processes is that the wafers typically exhibit an increase in the numbers of particulates which become adhered to or imbedded in the wafer." (Bergman, column 1, lines 55-58)

These particulates are further described in column 3, lines 49-68 of Bergman:

"The inventor hereof has discovered that vapor processing of semiconductor wafers, substrates and similar units using the novel processing described herein can result in the formation or [sic – “of” apparently intended] undesirable particulate in some types of processing. The particulate has been manifested in localized deposits, or alternatively, in relatively diffuse layers generally deposited over the entire treated surface of the wafer. In some cases the particulate will be sufficiently concentrated to form a visible haze. In other cases the particulate will only be observable using magnifying instrumentation.

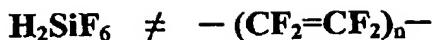
The exact nature of the particulate or particulates which form on the surface of the wafer is not known with certainty. However, it is believed to be one or more fluorosilicates formed by competing side reactions to the removal of silicon oxides by hydrofluoric acid. One possible fluorosilicate which may be formed is H_2SiF_6 , hydrogen hexafluorosilicate. Others compounds or solid phase mixtures may also be present or [sic] the primary particulate being formed."

Thus, the particles in Bergman are NOT shed from polytetrafluoroethylene, and in fact have nothing to do with polytetrafluoroethylene, but instead are particles formed by CHEMICAL REACTION of hydrofluoric acid (HF) and silicon (Si), leading Bergman to speculate that the particles have a chemical composition of hydrogen hexafluorosilicate (H_2SiF_6), in other words, as produced by the chemical reaction:



There is therefore nothing in Bergman that in any way teaches, suggests, or extrapolates to the presence of any particles of polytetrafluoroethylene, — $(CF_2=CF_2)_n$ —.

It will be appreciated that



and that there is no derivative basis in Bergman for the applicants' claimed invention, much less any basis for recognition of ANY particle problem associated with PTFE in Bergman.

Bergman is only concerned with a silicate particle problem caused by vapor etching of silicon wafers using hydrofluoric acid.

The examiner has nonetheless relied on Bergman under 102(b) as anticipating applicants' claimed invention, on the basis that Bergman uses PTFE parts in the vapor etching apparatus.

Bergman contains the following disclosure of using PTFE:

"The finger bushings 335 are made of a flexible material, such as TEFLON or other material suitable for service"
(column 13, line 67 to column 14, line 1)

[Note that for the finger bushings, TEFLON (PTFE) is described as a "material suitable for service." There is no disclosed problem or infirmity with such material, and based on the description, one of skill in the art would construe "suitable" to mean that the material is appropriate to and without problem in usage as a finger bushing material.]

"The inner bowl piece and bottom wall liner are made from materials suitable for direct contact with the HF or other processing chemicals used in the processing chamber 316, preferably TEFLON or other suitable fluoropolymer."
(column 16, lines 14-18)

[Note here that TEFLON (PTFE) is described as "a suitable fluoropolymer" for use as an inner bowl piece and bottom wall liner" and "suitable for direct contact with the HF or other processing materials used in the processing chamber" – if as described in other portions of the Bergman

disclosure, the silicate particles derive from chemical reaction with HF, and TEFLON (PTFE) is described as suitable for "direct contact with the HF" and TEFLON is known to be chemically inert (chemically non-reactive), then there is NO BASIS for deriving any kind or type of particle shedding behavior from the TEFLON; contrariwise, one of ordinary skill based on Bergman's disclosure would logically infer that TEFLON is a superior and non-problematic material for use in the parts described by Bergman.]

"The plug and bellows is preferably made from TEFLON."
(column 17, lines 21-22)

[Note again that there is nothing in the disclosure of TEFLON that in any way describes or recognizes such material as being in any way deficient or problematic.]

"Pump 546 is made with TEFLON or other parts suitable to the corrosive service." (column 22, lines 16-18)

[Note that TEFLON is described as "suitable to the corrosive service" and useful for pump construction. There is not even a hint that such material has any problem whatsoever.]

"Chemical is pumped from chemical bottle 560 using a metering pump 561 made with parts made of TEFLON or other suitable materials for the corrosive service." (column 22, lines 48-51)

[Note that TEFLON is described here as a "suitable" material "for the corrosive service." There is no logical basis for inferring the existence of a problem with TEFLON (PTFE) in this description.]

"Pump 576 is advantageously a diaphragm pump having TEFLON construction." (column 23, lines 8-9)

[Note again that TEFLON is identified as a material of construction for a pump, with no statement or suggestion of any particle shedding behavior, susceptibility, or property, or any deficiency whatsoever.]

The foregoing passages of Bergman are consistent in identifying TEFLON (PTFE) as being "suitable" and "preferably" and "advantageously" used. How does one of skill in the art, reading such disclosure,

- (1) perceive any problem with TEFLON to be present?
- (2) ignore Bergman's express teachings of suitability of TEFLON?
- (3) ignore Bergman's express teaching to heat for only thirty seconds to five minutes, and somehow derive (without any basis in the reference) the thousands of times longer heating period required by applicants' invention?
- (4) ignore Bergman's express teaching of silicate particles from a silicon wafer, but nonetheless infer in some unknown manner (without any basis in the reference) the existence of polytetrafluoroethylene particles?
- (5) ignore the fact that increasing the heating time beyond the thirty seconds to five minutes taught by Bergman would (based on the teachings of the reference) appear to be simply a waste of energy, time and effort (since the silicate particles described by Bergman would already have been volatilized)?

The answers to these questions are clear and self-evident. There is no derivative basis in Bergman for the applicants' claimed invention.

Particles shed from PTFE are PTFE particles. This is self-evident. It is correspondingly clear that PTFE particles are not equal or equivalent to, or in any way suggestive of, silicate particles.

Bergman in no way teaches that there is any particle shedding deficiency associated with PTFE components used in his wafer processing system.

Further, the heating process disclosed in Bergman, while it may be suitable for volatilizing etching reaction product particles, is wholly inadequate for treating a PTFE material to "substantially reduce a particle count character" thereof, as required by applicant's claim 1. See Bergman at column 11, lines 9-12, teaching that:

"**[T]he heating steps will usually be performed for periods in the approximate range of 30 seconds to 5 minutes, more preferably 30 seconds to 2 minutes.**"

See also Bergman at column 11, lines 20-22, teaching that:

"**[T]he wafers being processed are typically heated to temperatures in the range of 100°-300°C. during the volatilization processing.**"

The teaching in Bergman of heating time in a range of 30 second to 5 minutes should be contrasted with the heating duration required in the practice of applicant's claimed invention. As described at page 6, in paragraph [00031] of the instant specification,

"**a recommended time period is greater than about 20 hours, a more preferred time period is greater than 50 hours, and a most preferred time period is about 100 hours.**"

See also applicants' claim 7 ("the time is between about 20 hours and about 100 hours"), claim 11 ("said heating is for about 100 hours"), claim 14 ("the application of the elevated temperature is for between about 20 hours and about 100 hours"), claim 15 ("the elevated temperature is about 228°C and the application is for about 100 hours"), and claim 20 ("a temperature in a range of from about 150°C to about 250°C for a time greater than 20 hours").

It is apparent that the step of "heating for a time sufficient to substantially reduce a particle count character of the polytetrafluoroethylene material" in applicant's claimed invention, as involving suitable heating durations of ~20 to ~100 hours to achieve such character, is greatly

disproportionate to the 30 seconds to 5 minutes taught by Bergman for volatilizing the vapor etching chemical reaction product silicate particles.

There is a difference of 3 to 4 orders of magnitude between the heating durations involved in Bergman's wafer treatment process and heating times "sufficient to substantially reduce a particle count character of the polytetrafluoroethylene material" (claim 1) in applicant's claimed invention. Bergman in no way teaches, suggests or is capable of achieving the result produced by applicant's claimed invention.

In the context of §102(b), it is apparent that Bergman does not in any way anticipate or lead one of skill in the art in the direction of applicant's claimed invention. Contrariwise, Bergman teaches away from applicant's claimed invention, by instructing the use of extremely short heating periods that are grossly deficient for achieving the substantial reduction in particle count character that is obtained in applicant's claimed invention, even ignoring the fact that Bergman does not in any way recognize any deficiency of PTFE, instead describing such material as "suitable" and of a preferred and advantageous character.

The meaning of "teaching away" is clear and well-established in the applicable law. A reference "may be said to teach away when a person of ordinary skill, upon reading the reference,...would be led in a direction divergent from the path that was taken by the applicant."

See *Tec Air, Inc. v. Denso Mfg. Mich, Inc.* 192 F.3d 1353, 1360, 52 USPQ 2d 1294, 1298 (Fed. Cir. 1999).

Since Bergman motivates only extremely brief elevated temperature exposures to volatilized chemical reaction by-product fluorosilicate particles on or in wafers (which are wholly different

from, and non-analogous to, PTFE particles shed from PTFE films), there is no basis or reason in such reference for the skilled artisan to spontaneously adopt totally different (3-4 orders of magnitude higher) heating times than those taught by the reference in order to improve a material property that (1) is not even contemplated by the reference as being problematic, and (2) cannot in fact be improved by the brief elevated temperature exposure conditions taught by Bergman.

For all of the foregoing reasons, claim 1, and claims 2-9 depending directly or indirectly therefrom, are patentably distinguished over Bergman and in form for allowance.

Corresponding distinction is applicable to claim 10, which recites heating of PTFE material to about 228°C for a "sufficient time to substantially reduce a particle count character thereof." No such "sufficient time" is derivable, expressly, impliedly, or in any other manner, from Bergman. Accordingly, claim 10, as well as claim 11 dependent thereunder (claim 11 reciting heating "for about 100 hours") are patentably distinguished over Bergman.

Claim 12 also is patentably differentiated over Bergman. Claim 12 recites a PTFE material having a particle count character reduced by application of an elevated temperature thereto. There is NO teaching or suggestion in Bergman of such material, NO recognition of any "particle count" character, NO recognition that particle count character can in any way be altered by any heat treatment, and therefore NO recognition of any need for grossly extended heating times that are 3-4 orders of magnitude longer than what Bergman teaches is effective to volatilize silicate particles.

Bergman therefore provides no derivative basis for applicant's claimed PTFE material as recited in claim 12, and claim 12 is correspondingly patentable, as are claims 13-18 variously dependent thereunder.

Viewing again the rationale set forth at page 3 of the February 10, 2005 Office Action for the restriction and withdrawal of claim 20, the Examiner stated that claim 20 is a different process claim with a combination of three specific features including temperature, time and particle size. The Examiner has therefore ignored the recital of claim 1 as being directed to heating to elevated temperature, meaning the heating for time sufficient to substantially reduce a particle count character of the polytetrafluoroethylene material. Thus claim 1 addresses temperature, time and particle count character. The Examiner nonetheless has asserted that claim 20 "is a different process claim" as including features of time, temperature and particle size (actually, the recital in claim 20 is of treatment "sufficient to reduce particle count film to below 10 particles/ml of particles having a diameter of 0.2 micron"). The Examiner therefore has ignored the fact that claim 20 is reciting particle count in terms of reduction of concentration of particles of specific diameter, which is a "particle count character" of the PTFE material as specified in claim 20.

For all these reasons, there is no tenable basis for restricting out claim 20, particularly since the Examiner has conceded that claim 20 could be rewritten in a dependent form under claim 1 thereby implicitly conceding that the restriction is erroneous. The Examiner therefore is requested to reconsider the withdrawal of claim 20 and to reinstate same in active pending status.

The Examiner at page 5 of the February 10, 2005 Office Action states that "[E]ven the reference Bergman is only discussing a method for improved process of semiconductor wafers and the like by using heat to remove or volatilize the by-products from the wafer so that a low particle count performance is obtained, it anticipates the limitations of claims 1, 10 and 12." It is not seen how a reference which is dealing with silicate particles as by-products of vapor etching on a wafer can in anyway be extrapolated to particles of polytetrafluoroethylene. Not only are the silicate particles of fundamentally different chemical composition from the particles of applicant's

claimed invention (silicate particles in Bergman vs. polytetrafluoroethylene particles in applicant's claimed invention), but the particles in Bergman derive from chemical vapor-phase etching of silicon wafers and chemical reaction formation of such silicate particles, which is entirely different from and non-analogous to the shedding of PTFE particles addressed by applicant's claimed invention.

Bergman contains not even a single reference to recognizing any polytetrafluoroethylene particle problem.

Bergman utilizes heating times that are 3-4 orders of magnitude shorter than those employed in the heat treatment of applicant's invention and Bergman's heating therefore will affect no significant alteration of polytetrafluoroethylene components in the reactor of Bergman.

The simple fact that Bergman teaches a heating period that is thousands of times shorter than that required by applicant's claimed invention has been summarily ignored by the Examiner, despite the specific recital in applicants' claim 7 ("the time is between about 20 hours and about 100 hours"), claim 11 ("said heating is for about 100 hours"), claim 14 ("the application of the elevated temperature is for between about 20 hours and about 100 hours"), claim 15 ("the elevated temperature is about 228°C and the application is for about 100 hours"), and claim 20 ("a temperature in a range of from about 150°C to about 250°C for a time greater than 20 hours").

The examiner's speculation in the March 14, 2005 telephonic conference that this distinction is meaningless, in the examiner's statement that

"well, sometime researcher leave oven on and go home. This is trivial difference."

simply reinforces the lack of tenable basis for the rejection.

There is no basis in Bergman for applicant's invention.

The Examiner in the February 10, 2005 Office Action has taken issue with the recital in certain of applicants' independent claims of a "polytetrafluoroethylene material," contending that "such material may include anything as long as it has a PTFE homo-and co-polymer as one of the component [sic]." It is not understood what significance this statement has insofar as any bearing on the §102 rejection of claims based on Bergman. Further, the Examiner's reference to "homo-and co-polymer" is inconsistent as "one of the component." Applicants have broadly claimed their invention in a manner which is consistent with the showing of improvement, e.g., by a factor of 15-60 times, in relation to untreated polytetrafluoroethylene articles lacking the heat treatment of applicants' claimed invention.

The Examiner further has taken issue with the particle count reduction of "15 to almost 60 times those of untreated PTFE," stating that "[I]t is noted that the Examiner cannot and would not read specification into the claim according to MPEP [sic]." In fact applicant is not asking or implying that the particle count reduction evidenced by the data in the specification be read into applicant's claims, for the simple reason that applicant's claims are fully patentably distinguished over Bergman in their present form. The particle count reduction has been identified as being supported by applicants' actual data and thus as relevant to recital in applicants' claims of a reduced particle count character, as resulting from the claimed heat treating methodology of applicants' invention.

The Examiner's disregard of the patentable distinction of applicants' claims is particularly acute at Paragraph 9 of page 6 of the February 10, 2005 Office Action, wherein the Examiner speculates that

"it may be a common practice in the art to have the reduction of particle count [sic] by heating many types of materials since the heating would always evaporate the volatile contaminant as well as allowing the molecular rearrangement especially when the temperature is close to melting point." (emphasis added)

This is, by any stretch of law or practice, an improper basis for rejection of claims.

It is speculative ("may be a common practice") - the Examiner is simply hypothesizing, without any basis in any reference or general knowledge in the art, that the problem discovered by applicants, and the inventive solution to such problem, might be within the state of the art -- why then has no one identified this problem, and why has no one overcome such (unknown) problem in the manner of applicants' claimed invention?

Further, the Examiner refers to "the reduction of particle count by heating many types of materials," ignoring the fact that the particle shedding problem was heretofore unrecognized by the prior art, and non-resolved as a result of lack of recognition of the problem.

Further, the statement that heating to reduce particle count by heating many types of materials "may be a common practice in the art" is based on the rationale that "heating would always evaporate the volatile contaminant as well as allowing the molecular rearrangement."

This statements is simply false. Heating *per se* does not "always evaporate all of the volatile contaminant." There are innumerable materials that on heating simply decompose, oxidize, exhibit pyrophoricity, or otherwise undergo non-evaporative behavior.

The Examiner therefore is taking a non-recognized problem discovered by applicants and attempting by speculation and generalization to disparage the innovative and patentably inventive character of the method and treated material claimed by applicant.

The examiner's statement that heating would always allow molecular rearrangement is equally false. Heating *per se* may not effect any molecular rearrangement whatsoever, since a material being heated may remain in a stable state without any molecular rearrangement.

The Examiner again is engaging in speculation and hypothesis, undergirded by sweeping generalization, to disparage the patentable character of the applicant's invention.

The Examiner then concludes the Office Action with the statement that "[I]n summary, without specifying (A) the degree of count reduction and (B) a pure PTFE in the form of the film being used, the Bergment [sic-the reference is Bergman] reference anticipates the limitation of parent Claims 1, 10 and 12."

The sense of this statement is not understood since these claims recite a polytetrafluoroethylene material, and recite such material as having a reduced particle count character by reason of elevated temperature treatment. Bergman fails to teach any heating longer than 5 minutes and thus does not achieve any particle count character reduction, and more importantly Bergman does not even recognize that there is a particle count issue with polytetrafluoroethylene. Bergman therefore fails to provide any teaching or suggestion of applicants' extended duration heat treatment (e.g., having a duration on the order of 20 hours and longer – see applicants' claims 7, 11, 14, 15 and 20). Further, the Examiner's assertion that without specifying the degree of count reduction and PTFE film, Bergman anticipates applicants' invention, has no substantive basis as a ground for rejection, and in fact such position was repudiated by the examiner himself in the March 14, 2005

teleconference in reference to claim 20, which the examiner refused to concede as being allowable even though such claim recites a quantitative degree of count reduction, and recites PTFE film.

CONCLUSION

The position taken by the examiner in the Office Action is incorrect.

It is requested that the Examiner set aside such speculations as to a hypothetical researcher leaving an oven on all night (March 14, 2005 teleconference), and instead consider the specific teachings of Bergman, the sole reference the Examiner has cited for rejection of applicant's claims.

Taken against the background of the Bergman reference, which completely fails to recognize the problem addressed and overcome by applicants, it is clear that applicants' discovery of the problem (particle shedding of PTFE material) and method for overcoming same (extended heat treatment), and the resultingly improved PTFE material, are innovative and of patentable character. The Examiner is therefore requested to reconsider the position stated in the February 10, 2005 Office Action, and adopted in the March 14, 2005 teleconference, and on reconsideration, to allow the pending claims.

Respectfully submitted,



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